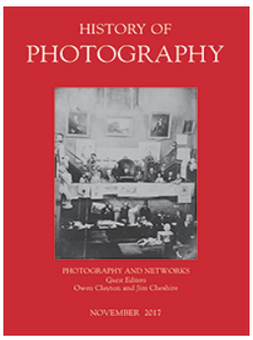

History of Photography

ISSN: 0308-7298 (Print) 2150-7295 (Online) Journal homepage: http://www.tandfonline.com/loi/thph20

Placing Early Photography: The Work of Robert Hunt in Mid-Nineteenth-Century Britain

James R. Ryan

To cite this article: James R. Ryan (2017) Placing Early Photography: The Work of Robert Hunt in Mid-Nineteenth-Century Britain, History of Photography, 41:4, 343-361, DOI: 10.1080/03087298.2017.1357268

To link to this article: https://doi.org/10.1080/03087298.2017.1357268

Published online: 28 Nov 2017.

Placing Early Photography: The Work of Robert Hunt in Mid-Nineteenth-Century Britain

James R. Ryan

The invention of photography in the late 1830s is conventionally framed in terms of simultaneous rival developments by a few well-known figures in England and France. Less attention has been paid to how early photography was shaped by a wider cast of individuals placed in both metropolitan and regional networks of science and applied arts. Drawing in particular on recent studies on networks and the geography of science, this article examines the significant but frequently overlooked contributions made to early photography by the chemist and popular science writer Robert Hunt (1807–87) as a way to open up questions about the spatial networks of early photography. Based in southwest Britain, and from a relatively humble background, Hunt experimented widely with early photographic processes. He used correspondence with key figures of Victorian science, notably Sir John Herschel, to share his knowledge and build a reputation within influential networks of early science and publishing. This article argues that Hunt's foundational contributions to early photography – which were widely recognised in the half century after his death – need to be better appreciated and understood within the setting of spatial networks of science and applied arts at various scales. These include regional networks, such as those in Cornwall; metropolitan circles in London; national networks, such as the British Association for the Advancement of Science; and national and international networks of publishers and readers. As an examination of Hunt's work demonstrates, accounts of early photography may profit from paying more attention to the networks and places in which photographers, photographs and writings on photography were located.

Keywords: *Early photography, Sir John Herschel (1792–1871), William Henry Fox Talbot (1800–77), Robert Hunt (1807–87), Cornwall, networks, geography of science*

Much writing on early photography has tended to focus on questions of origins and priority. Such scholarly preoccupations raise important historiographical questions concerning how such narratives are constructed and whose interest such stories serve.[1] Matters of geography and connectivity have, in contrast, received far less attention. At the same time, much history of photography remains dominated by accounts of individual photographic pioneers framed largely within a narrative and market of photographic art. Yet early photography was shaped by a wide cast of individuals operating across widely distributed networks of both science and applied arts. Recent scholars of early photography have therefore rightly highlighted the need to extend the field's focus on the history of images and visual arts in order to embed the history of photography more deeply within the history of science.[2] At the same time, following a 'spatial turn' across the humanities and social sciences in recent years, a growing field has opened up concerned with the historical geography of science, appreciative of how space and place shaped how science was made and

Research for this article was made possible thanks to a British Academy/Leverhulme Senior Research Fellowship (SF130143). I am grateful to the organisers and participants of the Rethinking Early Photography Conference, University of Lincoln, UK, 16–17 June 2015, where this research was first exposed and to my colleagues at the University of Exeter where it was developed. Particular thanks go to Luke Gartlan, Owen Clayton, Jim Cheshire and two anonymous referees for their comments. Finally, I thank all those who have generously shared their knowledge of Robert Hunt with me, including Carolyn Bloore, Michael Carver, Steve Edwards, Simon Naylor, Nigel Overton, Chitra Ramalingam, Larry J. Schaaf, Roger Taylor, James Yingpeh Tong, Alan Vawdrey and Kelley Wilder.

Email for correspondence: j.ryan@vam.ac.uk

1 – Tanya Sheehan and Andrés Mario Zervigón, 'Introduction', in *Photography and Its Origins*, ed. Tanya Sheehan and Andrés Mario Zervigón, Abingdon: Routledge 2015, 1–12. See also Geoffrey Batchen, *Burning with Desire: The Conception of Photography*, Cambridge, MA: MIT Press 1997.

2 – Kelley Wilder, 'A Note on the Science of Photography: Reconsidering the Invention Story', in *Photography and Its Origins*, ed. Sheehan and Zervigón, 208–21.

History of Photography, Volume 41, Number 4, November 2017
https://doi.org/10.1080/03087298.2017.1357268

communicated in the past. This ranges from the role of specific sites of sciences, such as the laboratory or the field, to large scales in which science was organised and shared, such as regional scientific societies, as well as spaces of circulation.[3]

This article examines the significant contributions made to early photography by the chemist and popular science writer Robert Hunt as a way to open up questions about the historical geography of early photography. I argue that Hunt's activities in early photography may be better appreciated by locating them within the spaces and networks of science and applied arts. In so doing I seek to demonstrate how accounts of early photography might profit from paying more attention to the diverse places and networks in which photographic practitioners, as well as their photographs and writings, were located. Nineteenth-century books and journals on photography attest to Robert Hunt's pervasive presence as a chemical experimenter, commentator and critic. Indeed, Hunt was at the centre of many of the core circles and conversations on photography in its first two decades. No other figure quite matches his breadth of activity in relation to photography, as an experimenter in and inventor of photographic chemistry and processes, as a writer on the history and technology of photography, as a correspondent in networks of science and art, and as an organiser of photographic activity, particularly in exhibitions and societies. Moreover, as author of the first English-language manual and history of photography, *A Popular Treatise on the Art of Photography* (1841), Hunt was a key midwife in the birth of the history of photography which began at the medium's invention and remained an enduring preoccupation in photographic literature throughout the nineteenth century.[4]

Hunt's humble origins, expertise in chemistry, enthusiastic experimental work and prolific writings mark him out as a distinctive figure. His chemical training enabled him not only to test and understand the photochemical processes about which he wrote, but also to experiment and invent his own processes. Although Hunt's photographic experiments did not yield popular or commercial success, his practical experience and chemical expertise lent weight to his writings. In turn, his many publications spread his reputation and authority on photography – at a time when few people had even seen photographs – facilitating his access to networks of science through which he gained social status and career opportunities. As I go on to elaborate, Hunt's authority was derived in large measure from the way he placed himself within a range of social networks of science in nineteenth-century Britain. Hunt's extensive and varied published output in particular demonstrates the way he experimented with genres of writing in order to fashion his career in science.[5] Hunt's writings on the history of photography were also shaped by contemporary genres of historical writing about science and technology, and debates about how stories of discovery and invention should be narrated.[6]

While Hunt was accorded a central presence in historical accounts of photography that emerged in the two decades after his death, historians of photography since the Second World War have, with a few notable exceptions, not served Hunt so well. Helmut Gernsheim noted Hunt's importance as 'the leading authority on photography in the first 25 years of its existence, the principal investigator of its chemical phenomena, its principal writer, and its first historian'.[7] Larry Schaaf similarly calls Hunt's dual role as participant and chronicler 'an unparalleled achievement'.[8] Yet most postwar histories of photography mushroomed around bodies of work that could be venerated as wholly original technical or aesthetic landmarks by historians and collectors. Because Hunt's interest was experimental and chemical rather than pictorial, he focused on generating comparable results, often photographing the same buildings, trees, or objects. While he was a prolific experimenter, relatively few examples of his photographic work survive.[9] Nor did Hunt benefit from a well-established family network with the means, like that of Talbot, to champion his achievements, legacy and archive. The breadth of Hunt's fields of work across networks as diverse as geology and folklore also makes him hard to categorise and paradoxically assisted his invisibility; he is often noted in

3 – David N. Livingstone, *Putting Science in Its Place: Geographies of Scientific Knowledge*, Chicago: University of Chicago Press 2003; Diarmid A. Finnegan, 'The Spatial Turn: Geographical Approaches in the History of Science', *Journal of the History of Biology*, 41 (2008), 369–88; Simon Naylor, 'Historical Geographies of Science: Places, Contexts, Cartographies', *British Journal for the History of Science*, 38:1 (March 2005), 1–12; James Secord, 'Knowledge in Transit', *Isis*, 95:4 (December 2004), 654–72; and David N. Livingstone and Charles W. J. Withers, 'Thinking Geographically about Nineteenth-Century Science', in *Geographies of Nineteenth-Century Science*, ed. David N. Livingstone and Charles W. J. Withers, Chicago: University of Chicago Press 2011, 1–19.

4 – Hunt's text developed from his work at the British Association for the Advancement of Science meeting at Glasgow in 1840. It was issued within a larger volume of scientific titles under the general heading *Griffin's Scientific Miscellany*, as well as a separate bound volume, also published by Griffin of Glasgow. Robert Hunt, *A Popular Treatise on the Art of Photography, including Daguerréotype, and All the New Methods of Producing Pictures by the Chemical Agency of Light*, Glasgow: Richard Griffin & Co. 1841.

5 – For an excellent discussion of Hunt's experiments with different genres of science writing that focuses on three of Hunt's books – *The Poetry of Science* (1848), *Elementary Physics* (1851) and *Panthea: The Spirit of Nature* (1849) – see Melanie Keene, '"An Active Nature": Robert Hunt and the Genres of Science-Writing', in *Uncommon Contexts: Encounters between Science and Literature, 1800–1914*, ed. Ben Marsden, Hazel Hutchison, and Ralph O'Connor, London: Pickering & Chatto 2013, 39–53.

6 – Chitra Ramalingam, 'Histories of Photography as Invention and Science in Victorian Britain', paper presented at Rethinking Early Photography Conference, University of Lincoln, UK, 16–17 June 2015; and Simon Schaffer, 'Commentary', in *William Henry Fox Talbot: Beyond Photography*, ed. Mirjam Brusius, Katrina Dean, and Chitra Ramalingam, New Haven, CT: Yale University Press 2013, 269–90.

7 – Helmut Gernsheim, 'Cuthbert Bede (The Rev. Edward Bradley, 1827–1889), Robert Hunt F.R.S. (1807–1887), and Thomas Sutton (1819–1875)', in *One Hundred Years of Photographic History: Essays in Honour of Beaumont Newhall*, ed. Van Deren Coke, Albuquerque: University of New Mexico Press 1975, 62.

8 – Larry J. Schaaf in collaboration with Roger Taylor, 'Biographical Dictionary of British Calotypists: Hunt, Robert', in *Impressed by Light: British Photographs from Paper Negatives, 1840–1860*, ed. Roger Taylor, New York: Metropolitan Museum of Art 2007, 331–32.

9 – Hunt's photographs, like his correspondence and writings, are widely dispersed. This article draws on the major holdings of

footnotes or asides, simultaneously everywhere and nowhere.[10] Some well-known accounts of the origins of photography do not register Hunt at all.[11] Tellingly, scholarly interest in Hunt in the 1970s came less from historians of photography than from scholars of chemistry and local history.[12] More recently Hunt has attracted attention from scholars of popular science and even science fiction, attesting further to his place within diverse communities and networks of science and publishing.[13]

Hunt's interest in photography took shape and flourished in particular physical and intellectual environments, from his early enthusiasms and connections within regional scientific and literary societies in southwest England, to his later complex circulations within metropolitan centres of arts and science. In addition, his different photographic experiments carry traces of the places in which they were made. In this way, Hunt should be regarded not simply as an 'early photographer' but as a practitioner deeply invested in making and recording experiments with light and chemistry and forging a career in science. As well as asking what Hunt made photographs of, when, why and how he made them, we need to consider where he made them and what he did with them. In other words, as historians of early photography, we might add another dimension to our enquiries by considering the places and networks in which individuals like Robert Hunt operated.

Hunt's experimental, literary, organisational and collecting work in photography, which was part of his broader interest in studies on light, lasted approximately twenty-five years, from 1839 to the mid-1860s, and took place across a number of geographical locations. In this article I chart three key locations where Hunt operated over this quarter of a century. The first is Devonport, the navy port on the border of Devon and Cornwall where Hunt was born and where he first undertook photographic experiments in 1839. The second location is Falmouth, the port town on the south coast of Cornwall, where from 1840 to 1845 Hunt undertook further photographic experimentation and early writing and from where, nourished by a fertile regional culture of science, he developed more extensive connections within national networks of science. The final location is London where, from his institutional base at the Museum of Practical Geology from 1845, Hunt circulated within the metropolitan and professionalising worlds of Victorian science. These three locations each possessed their own *genius loci* and presented Hunt with different atmospheres, environments and social networks in which he made a place for himself and his family and through which he pursued his work in photography. This activity included experimental work in and out of the laboratory; communicative work (especially through networks of private correspondence and publication); and organising work (notably through networks of exhibitions and communities of photographic practitioners). These places were not isolated islands; they were connected and traversed by networks of information and communication that involved letters, objects, photographs and people, not least Robert Hunt himself. Nevertheless, the ways in which these networks coalesced at particular locations shaped Hunt's intellectual environment and practical activities, and thus early photography, in significant ways.

Regional Science and Early Photography: Robert Hunt in Devon and Cornwall

Robert Hunt's experiments in photography began in early 1839 when he was running a chemist and druggist business at 12 Cornwall Street, Devonport, England.[14] Hunt's opportunities for photographic experimentation benefitted both from his extended family networks in Devonport and his professional contacts as a chemist. Although Hunt and his wife Harriet had both been born in Devonport, they had only returned to the town in 1836 after running a similar business in Penzance, Cornwall. As one of the 'three towns' of Plymouth, and home of the Royal Navy Dockyard, Devonport was part of an urban centre of huge military, mercantile and industrial significance. Outside of Bristol, no other place in

his photographic material at the Harry Ransom Center, University of Texas at Austin, USA (964:0064, thirty-eight images); Museum of the History of Science, Oxford, UK (Sir John Herschel collection, six images); National Media Museum, Bradford, UK (1943–34, seven images); and George Eastman House, Rochester, NY, USA (Boyer collection, four images).

10 – Mary Warner Marien calls Robert Hunt 'a geologist and staunch advocate of photography from the first'. Mary Warner Marien, *Photography: A Cultural History*, London: Laurence King 2002, 76.

11 – Despite noting in his forward that 'Photography is at once a science and an art, and both aspects are inseparably linked' (no page), Beaumont Newhall does not mention Hunt's experiments or writings in Beaumont Newhall, *The History of Photography from 1839 to the Present Day*, rev. and enl. edn, London: Secker & Warburg 1972. Nor does he figure in Brian Coe, *The Birth of Photography: The Story of the Formative Years 1800–1900*, London: Ash & Grant 1976.

12 – James Yingpeh Tong, *Robert Hunt, A Popular Treatise on the Art of Photography*, facsimile edn, Athens: University of Ohio Press 1973; and Alan Pearson, *Robert Hunt, F.R.S., 1807–1887*, Penzance: Federation of Old Cornwall Societies 1976.

13 – Keene, 'An Active Nature'. See also Steve Edwards, 'Hunt, Robert 1807–1887', in *Encyclopaedia of Nineteenth-Century Photography*, ed. John Hannavy, London: Routledge 2008, 731–32; Steve Edwards, *The Making of English Photography: Allegories*, University Park: Pennsylvania State University Press 2006, 64–66; Alan Pearson, 'Hunt, Robert (1807–1887)', *Oxford Dictionary of National Biography*, Oxford: Oxford University Press 2004, available at http://www.oxforddnb.com/view/article/14203 (accessed 15 October 2012); and Carolyn Bloore, 'Robert Hunt: Photographs and Folk Tales', *The PhotoHistorian*, 173 (Summer 2015), 12–16.

14 – Hunt later dated his first photographic experiments precisely to 28 January 1839, two days before Talbot presented his paper on 'photogenic drawing' at the Royal Society in London. Whatever the truth of this claim, it is certainly the case that early in 1839, fired first by the news of Daguerre's discovery and then Talbot's paper, Hunt embarked on extensive experiments. As he later put it: 'the investigation of the chemical phenomena of the solar rays has been the constant employment of all the leisure which a busy life has afforded me'. Robert Hunt, *Notes and Queries* (February 1854), cited in Gernsheim, 'Cuthbert Bede', 62.

southwest England had such a sizeable professional and affluent social elite interested in the latest science, technology, fashion and art. Such networks of learning and innovation were fostered further through various institutions such as Plymouth Proprietary Library (1810), Plymouth Athenaeum (1812), the Cornwall Street Library (1812) and Devonport Mechanics Institute (1823). Devonport thus provided Hunt with unique opportunities for learning and extending his professional contacts.[15] It was here that he met John Towson, a maker of chronometers and watches, with whom he collaborated in early photographic experiments in 1839.[16]

From Devonport, Hunt determined to promote his work within more dispersed networks of science, sending several of his 'photographic' drawings and papers to the eminent astronomer, chemist and experimental photographer Sir John Herschel. One of these camera images shows a steeply terraced row of houses, most probably outside Hunt's chemists shop on Cornwall Street, Devonport (figure 1).[17] In addition to sending annotated specimens of exposed direct-positive photographs, Hunt sent Herschel unexposed prepared papers and a printed sheet of instructions. The latter, printed at the Telegraph Office in Devonport, did not name his process but used the term 'photographic' (rather than Talbot's 'photogenic') and provided instructions for 'taking views with the camera obscura'.[18] The camera image of houses (as seen in figure 1) was one of a pair, the other images being contact images mostly of leaves. All were direct-positive images made using a bleaching process with paper treated with silver nitrate, resensitised with potassium iodide. One contact image shows the leaf of an Indian Bean Tree, *Catalpa bignonioides*, a spectacular deciduous tree with pale or bright green leaves, which was introduced into Britain from North America as a specimen tree and highly regarded by Victorian gardeners (figure 2). Where Hunt acquired the leaf is not known but its use indicates that Hunt's passion for photography was forged within a complex set of geographical forces. Devonport's role as a naval base made it an important node in a global network of trade and British imperial power and brought new people, objects and ideas right to Hunt's front door.[19]

Although Hunt marketed his prepared papers and chemicals it is unclear how widely they were adopted and Talbot's 1841 calotype process crushed any commercial potential. Nevertheless, initial correspondence and exchange of photographic specimens between the young Robert Hunt and Sir John Herschel began

15 – Nigel Overton, 'Plymouth: Three Towns One City', *The PhotoHistorian*, 170 (Autumn 2014), 5–13.

16 – See J. T. Towson, 'The History of Photography to the Year 1844', *Transactions of the Historic Society of Lancashire and Cheshire*, 5:17 (1865), 249–56; and J. T. Towson, *London and Edinburgh Philosophical Magazine* (November 1839), 385. See also Hunt, *A Popular Treatise*, 94 and 99.

17 – Little of Cornwall Street survives today but its nineteenth-century appearance is confirmed from later Victorian photographs. See, for example, *Plymouth and Plymothians: Photographs and Memories*, compiled by Andrew Cluer, Plymouth: Lantern Books 1974.

18 – 'Hunt's Positive Photographic paper & drawings' (six exposed specimens, nine unexposed prepared papers and a small printed sheet of instructions sent to Herschel by Robert Hunt in 1839), Museum of History of Science, Oxford, UK.

19 – For examples of a global and networked approach to the British Empire, see Christopher Bayly, *The Birth of the Modern World, 1780–1914: Global Connections and Comparisons*, Oxford: Blackwell 2004; and Alan Lester, 'Imperial Circuits and Networks: Geographies of the British Empire', *History Compass*, 4:1 (January 2006), 124–41.

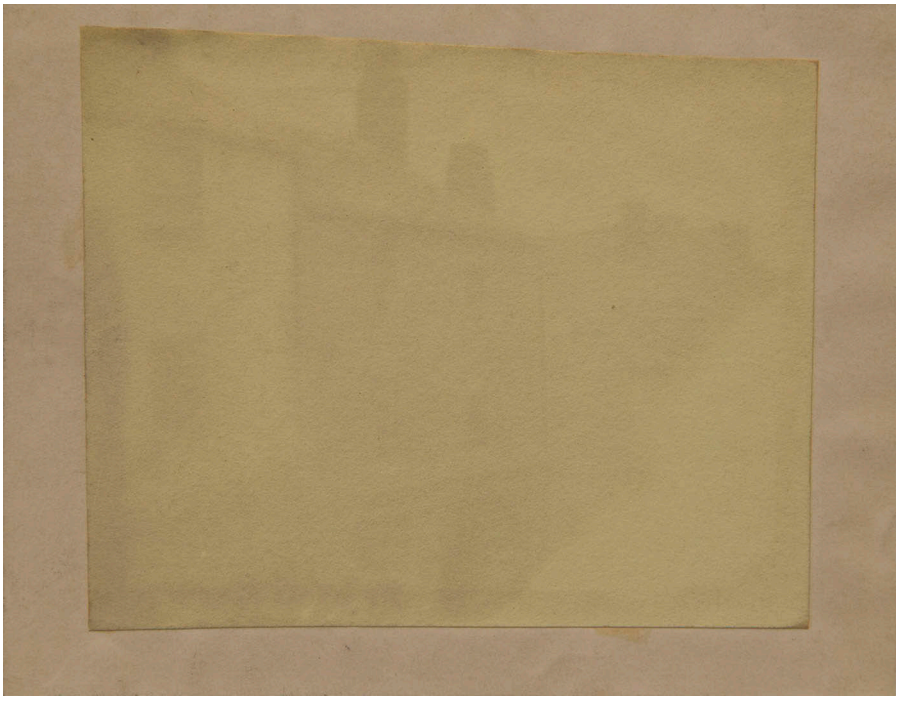

Figure 1. Robert Hunt, untitled (*Experimental 'Photographic Drawing' of Terrace of Houses [Cornwall Street, Devonport]*), direct-positive photogenic drawing, not dated (1839). Inscribed in Hunt's hand on back of mount: 'Both Camera Views |washed with Ammon: Mur: |bleeched by Baryt: Hydriodat'. Museum of the History of Science, Oxford, Inventory no. 34450.

Figure 2. Robert Hunt, untitled (*Experimental 'Photographic Drawing' of Leaves*), direct-positive contact photogenic drawing, not dated (1839). Inscribed in Robert Hunt's hand on back of mount: 'Washed with Muriate of Baryta |Bleached by Potassa Hydriodat'. Museum of History of Science, Oxford, Inventory no. 62706.

a relationship that enhanced decisively Hunt's future work and career. Herschel was one of the best known figures in science in Victorian Britain and played a critical role in the development of photography through his correspondence, particularly with Talbot and Hunt, and his own chemical experiments, not only coining the term photography but also the terms negative and positive.[20] Fifteen years Hunt's senior, Herschel appreciated Hunt's abilities as a chemist and adopted a generous and paternal attitude to this self-made experimenter, sponsoring his first scientific paper and supporting his access to highly influential networks of photographers and institutional circuits of science in Britain.[21]

Hunt's place within networks of photography and science took on a new configuration when in 1840 he moved further west to Falmouth, Cornwall, to take up the position of Secretary of the newly formed Royal Cornwall Polytechnic Society (RCPS). Although Falmouth was smaller and even further from London than Devonport, Hunt's new position brought him within wider circles of influence in regional and national science. Cornwall possessed a dynamic culture of science that borrowed from and reinforced its distinctive regional identity as a 'Celtic' county surrounded on three sides by sea, with a unique mineral-rich geology, rugged topography, climate and natural history.[22] The county boasted a number of scientific heroes, from William Borlase (1696–1772) to Humphry Davy (1778–1829), and hosted numerous learned organisations of science, literature and art of which the RCPS was one of the most notable and active. In the fertile institutional setting of the RCPS and through the patronage of its elite committee members, as well as his ongoing correspondence with Herschel, Hunt developed his undoubted organisational capacities and pursued his passion for science.

Cornwall was also familiar territory for Robert Hunt as he had attended school in Penzance, before being apprenticed to a surgeon in London. Thereafter he had moved back and forth between London and Cornwall, attempting to further his studies in science and dreams of literary success, as well as supporting himself and his widowed mother. In 1831 Hunt returned to Penzance, a thriving seaport and market town, to start a chemist and druggist business. Here he became involved in wider literary and scientific society, such as the Royal Geological Society of Cornwall and the Penzance Literary and Scientific Institution, which he helped to found and where he first lectured on science. The heritage of invention in practical technology and science was deeply felt in Cornwall and it seeped into the landscape

20 – Larry J. Schaaf, *Out of the Shadows: Herschel, Talbot and the Invention of Photography*, London: Yale University Press 1992.

21 – Hunt's correspondence with Herschel, to which I return briefly later, deserves greater critical scrutiny. Herschel correspondence, Royal Society, London, JH/A/539, 1839–1867 (fifty-seven letters). Hunt's wider networks of correspondence with Talbot, Herschel and others can be traced in manuscript collections at the British Library, London, UK; George Eastman House, Rochester, NY, USA; British Geological Survey, Nottingham, UK; and the National Media Museum, Bradford, UK.

22 – Simon Naylor, *Regionalizing Science: Placing Knowledges in Victorian England*, London: Pickering & Chatto 2010.

and inhabitants of Cornwall's industrial, port and market towns. Hunt identified deeply with this culture and was swift to align himself with key figures like Sir Humphry Davy, the Cornish inventor and chemist, to whom Hunt was distantly related. Hunt was quick to record how he had repeated Davy's early experiments with light-sensitive chemicals.[23] He also modelled his early poetry on Davy's work and went on to write Davy's biography for the *Dictionary of National Biography*.[24]

Hunt's growing reputation in science was therefore amplified through regional networks of which he had long been part. Hunt was recommended for the post of Secretary of the RCPS by its first secretary Thomas Jordan, an instrument maker and teacher who he first met in Penzance in the early 1830s. Jordan and Hunt's friendship also extended to early experimental collaboration; in February 1839, the RCPS Committee reported that Jordan had invented an instrument that used light-sensitive paper to 'self-register' meteorological data, including barometric observations and the intensity of sunlight.[25]

Hunt's move to Falmouth in 1840 thus enhanced his place within regional networks of science and technology. As the Royal Mail Packet Station, Falmouth was the principal point of departure of mails from Britain to Europe and to her Empire across the Atlantic. Thus although the town was geographically remote from London it was centrally placed in the networks of communication and trade within Britain's global maritime economy. Like other Cornish towns, its local elite sought to foster the 'natural genius' of its inhabitants through institutions of learning and improvement.

23 – Robert Hunt, 'On the Permeability of various Bodies to the Chemical Rays', *Philosophical Magazine* (February 1840), cited in Gernsheim, 'Cuthbert Bede', 62.

24 – Hunt's 1830 book of poetry, *The Mount's Bay* was clearly influenced by Davy's poem 'On the Mount's Bay' of 1796. Robert Hunt, *The Mount's Bay; a Descriptive Poem*, Penzance: J. Downing and T. Matthews 1829. See also Robert Hunt, 'Sir Humphry Davy (1778–1829)', in *Dictionary of National Biography*, ed. Leslie Stephen and Sidney Lee, London: Smith Elder & Co. 1908, vol. 5, 637–43.

25 – Hunt, *A Popular Treatise*, 87–89. Circumstantial evidence suggests that Hunt assisted his friend in using Talbot's process of preparing photographic paper, which Talbot had only announced (not detailed) at the Royal Society on 31 January 1839. Jordan called his invention, which he improved and elaborated over the next few years, the 'Heliograph'. See *RCPS Reports* (18 February 1839).

The RCPS and Networks of Science and Society

The practice of early photography was profoundly influenced by institutions of learning and innovation which flourished across Victorian Britain. At the heart of such networks in Cornwall was the 'Cornwall Polytechnic Society', founded in 1833 by the Fox family, a wealthy and well-connected group of Quakers with extensive business interests in shipping, mining and engineering.[26] The aims of the 'Polytechnic' – the first of its kind in Britain – were to promote ideas, inventions, industry, science and the useful and fine arts within all classes of society in Cornwall. By 1836 the Society had its own 'Polytechnic Hall' in Falmouth, and Royal patronage. The RCPS pursued its aims with lectures, 'conversaziones' and (from 1833) published Annual Reports, which it shared and exchanged with similar learned institutions in Britain and further afield. In so doing, it attracted books, maps, specimens and all kinds of objects into its own collections. Most importantly in 1833 it inaugurated its Annual Exhibitions. Each autumn, over one week, the public and visitors from within and without Cornwall were invited to view the many categories of exhibit, from fine arts to mechanical inventions. By the award of prizes of money, medals, certificates and public acclaim, the RCPS sought to encourage innovative solutions to useful questions of art and industry. The RCPS combined the activities of a learned society with those of exhibition hall, lecture theatre, museum, library and social hub – all in one building in the centre of Falmouth. In this way it played an important role in shaping the geography of proprietary science within Cornwall.[27]

Hunt's position as RCPS Secretary gave him a reliable annual income (of £80), which he supplemented by practising analytical chemistry and teaching chemistry to local gentlemen. His official duties working with the Cornish tin mining industry gave him exposure to new methods of enquiry and lasting contacts with mine owners and mining communities across the region. Together with Cornish collaborators such as Robert Were Fox, Hunt became actively engaged in regional investigations in mining and geology, including assessments of air quality and water in mines, and the operation of electricity in mineral veins. In the process he acquired experience in writing and publishing research findings and organising initiatives to promote improvements in mining industry. This work within regional

26 – Prime movers behind the Society were Anna Maria Fox (1815–97), who proposed the name, her father Robert Were Fox, FRS (1789–1877), scientist, industrialist and inventor, her brother (Robert) Barclay Fox (1817–55) and sister Caroline Fox (1819–71).

27 – Simon Naylor, 'The Field, the Museum and the Lecture Hall: The Spaces of Natural History in Victorian Cornwall', *Transactions of the Institute of British Geographers*, 27 (2002), 494–513; and Simon Naylor, 'Geological Mapping and the Geographies of Proprietorship in Nineteenth-Century Cornwall', in *Geographies of Nineteenth-Century Science*, ed. Livingstone and Withers, 345–70.

networks of mining and applied science nourished Hunt's interest in speaking and writing about science for a wider popular audience.

It was in this fertile and well-connected setting that Hunt continued his experiments with light-sensitive chemicals and the camera obscura. Since there was no appropriate space in the Polytechnic Hall, Hunt seems to have established his laboratory at his home in Falmouth where he lived with his wife and growing family, assisted by one domestic servant. Most likely he used one of the two downstairs rooms at the back of the house, which was north facing, windowless and within easy access of the outside well. By contrast, the front of the house attracted full sunlight, which, perhaps together with Hunt's increasing social respectability, made it an attractive prospect to be photographed (figures 3 and 4) as well as a place to take photographs from.[28] As with his early Devonport experiments, Hunt's photographs became significant experimental currency within his developing networks of correspondence; although they were made very locally, Hunt's photographs travelled far. In September 1841, for example, Hunt sent some 'camera views, the results of 3 and 5 minutes' to Talbot. From his home in Falmouth, Hunt also sent photographs to Sir John Herschel in Kent, including views of his house and one that appears to depict Hunt standing at his garden gate (figure 4).[29] Most of Hunt's photographs were made as paper traces of chemical experiments and eschewed human subjects; many were direct positive prints he made without a camera, including botanical prints on fabric and paper (figure 5).[30] So the making of this self-portrait camera view suggests an attempt to engage Herschel not just with discussion of matters of chemistry and light, but with a glimpse of Hunt's place at home in Falmouth. Hunt made parallel attempts in his correspondence to forge an emotional link with Herschel. Hunt's early letters to this eminent man of science emphasise Hunt's lowly status as 'humble enquirer [...] a poor man [...] engaged in an arduous struggle to support a young family'.[31] By 1842 he was sharing not only his chemical experiments but also personal information about his family and health. In May 1842, for example, he told Herschel of his suffering 'a serious affection of the head under which I have been suffering and which even now is dreadfully distressing'.[32]

28 – Hunt made a number of camera views from an upstairs window of his house. See, for example, Robert Hunt, 'Probably a View from Robert Hunt's House in Falmouth, Cornwall, 1844', Energiatype, George Eastman House, 1968.0079.0001.

29 – My conjecture that this is a self-portrait is supported by the similarity in dress and appearance of the figure in the photograph to the watercolour portrait of Hunt painted by William Buckler in the same year (figure 6).

30 – See also 'Attributed to Robert Hunt, English, 1807–1887 [Botanical Specimens]', ca. 1841, photogenic drawings. Negatives on paper and silk; Metropolitan Museum of Art, The Rubel Collection, Purchase, Anonymous Gift; 1997.382.6a-d.

31 – Robert Hunt to John Herschel, 9 December 1839, Herschel correspondence, Royal Society, London.

32 – Robert Hunt to John Herschel, 28 May 1842, Herschel correspondence, Royal Society, London.

Figure 3. Robert Hunt, untitled (*A View of Houses, made outside 20 Berkeley Vale, Falmouth, Robert Hunt's Home 1840–45*), Energiatype (direct-positive photogenic drawing), not dated (ca. 1844). Signed in ink in Hunt's hand on verso: 'Energiatype 1844 R Hunt'. Herschel Collection, 1943-34/3, National Science and Media Museum, Bradford/Science & Society Picture Library.

Figure 4. Robert Hunt, untitled (*A View of the Front of 20 Berkeley Vale, Falmouth, Robert Hunt's Home 1840–45, with an unidentified man, closely resembling Robert Hunt, standing at the Garden Gate*), direct-positive photogenic drawing, 7 September 1842? Annotated in pencil on verso: 'R H Sept 7 1842'. Herschel Collection, 1943-34/7, National Science and Media Museum, Bradford Science & Society Picture Library.

Figure 5. Robert Hunt, untitled (*Botanical Specimens*), chromatype (experimental photogenic drawing), ca. 1844. Courtesy George Eastman Museum, Rochester, gift of Alden Scott Boyer.

Hunt's position at the RCPS also gave him direct access to national networks of science, to the lasting benefit of his career. When, for example, the British Association for the Advancement of Science (BAAS) held its 1841 annual meeting in Plymouth, many eminent figures in science, such as Henry De la Beche, Director of the Geological Survey of Great Britain, progressed on to Falmouth to attend the RCPS annual exhibition. Through the influence of key men like De la Beche, Hunt made new connections in the BAAS and wider worlds of science. He was elected Secretary of the Geological and Minerology Section and subsequently attended annual BAAS meetings around Britain where he spoke on a variety of subjects, including photography. For example, Hunt presented his 'Chromatype' process to the British Association meeting at Cork in 1843.[33]

Hunt's position at the RCPS, support from Herschel and wider circulation via the BAAS gave him the contacts and momentum to launch himself into the growing marketplace for science that developed across a variety of sites and experiences in nineteenth-century Britain, from exhibitions and lecture halls to printed books and periodicals.[34] Hunt's 1841 book *A Popular Treatise on the Art of Photography*, the first English-language manual and history of photography, detailed all Hunt's experiments with photography and extended greatly his authority in networks of photography, science and publishing.[35] Presentations at BAAS meetings and science publishing were closely related. For example, Hunt was quick to include 'a particular process which I discovered, and published at the meeting of the British Association at Cork, in August 1843' in subsequent editions of his *Treatise* where he detailed his own experiments.[36] Hunt was keen to use his publications to establish his own claims to photographic discovery and did so by referencing how he had presented his findings at BAAS meetings and published his results in respectable journals. Writing about 'The Ferrotype', for example, Hunt noted: 'This process, which is of remarkable sensibility, was discovered by the author, and published in the Athenaeum, under the name of the Energiatype'.[37] Indeed, the third edition of Hunt's *A Popular Treatise* (now titled *A Manual of Photography*) reorganised his text into two parts, the first of which was given over to a 'History of Discoveries in Photography'. This culminated in a short chapter that presented a 'General Summary of the History of Photography' in the form of a table ('compiled with much care for the British Association, by the author, and printed by that body in their reports for 1850') that listed various chemical elements (especially metaliferous salts) and 'resinous bodies' alongside the name of the individual who had first discovered their photographic properties and the date.[38] In this way, Hunt used his authority as a published experimenter and narrator of the history of photography to place himself firmly within an illustrious international network of photographic discoverers, including Davy, Herschel, Talbot, Niepce and Daguerre.

A watercolour portrait of Robert Hunt made by the artist William Buckler in 1842 captures something of this growing reputation, showing the young man of science seated comfortably in respectable surroundings (figure 6). Nearby on a small table is an array of equipment, including a camera, photographs and prism, the latter casting bands of coloured light onto the tablecloth.[39] In the background sits a small pile of books, a reference to Hunt's recent publication. Indeed, it was Hunt's engagement with networks of printed publication, as much as his experimental knowledge, which amplified his authority in early photography.

Hunt's writing found a ready market in the booming networks of books, reviews and periodicals in the mid-Victorian era. Hunt's next book, *Researches on Light* (1844), also written in Falmouth, elaborated his photographic experiments and theories of light.[40] The same year he published details in *The Athenaeum* of his new photographic process, the Energiatype.[41] Nineteenth-century Britain witnessed a mushrooming of periodical literature catering to a growing readership; some one hundred and twenty-five thousand periodicals and newspaper titles were published over the course of the century.[42] The periodical press played a key role in communicating ideas and inventions in science, not only through dedicated articles on science but also through

33 – The 'Chromatype' was a paper-based photographic process using salts of chromium. Although it could make direct-positive photogenic drawings it was insufficiently sensitive to be used in a camera.

34 – *Science in the Marketplace: Nineteenth-Century Sites and Experiences*, ed. Aileen Fyfe and Bernard Lightman, Chicago: University of Chicago Press 2007. See also Bernard Lightman, *Victorian Popularizers of Science*, Chicago: University of Chicago Press 2007; *The Organisation of Knowledge in Victorian Britain*, ed. Martin Daunton, Oxford: Oxford University Press 2005; and Diarmid Finnegan, *Natural History Societies and Civic Culture in Victorian Scotland*, London: Pickering and Chatto 2009.

35 – Hunt, *A Popular Treatise*. A revised and enlarged edition of Hunt's work was published in 1851 under a slightly different title: Robert Hunt, *Photography: A Treatise on the Chemical Changes Produced by Solar Radiation, and the Production of Pictures from Nature by the Daguerrotype, Calotype, and Other Photographic Processes, Encyclopaedia Metropolitana: Or, System of Universal Knowledge*, 2nd edn, rev., London: John Joseph Griffin & Co. 1851. In 1853 a new, enlarged and retitled edition appeared: Robert Hunt, *A Manual of Photography*, 3rd edn, London: John Joseph Griffin & Co. 1853.

36 – Hunt, *Manual of Photography* (1853), 72.

37 – Ibid., 76.

38 – Ibid., 99–112.

39 – William Buckler (1814–84), originally from Newport on the Isle of Wight, came from an artistic family and became a student of the Royal Academy Schools. He acquired a reputation as a watercolour portraitist and between 1836 and 1856 exhibited sixty-two pictures at the Royal Academy. Yolanda Foote, 'Buckler, William (1814–1884)', *Oxford Dictionary of National Biography*, Oxford: Oxford University Press 2004, available at http://www.oxforddnb.com/view/article/3864 (accessed 11 July 2017).

40 – Robert Hunt, *Researches on Light; An Examination of all the Phenomena connected with the Chemical and Molecular Changes produced by the Influence of the Solar Rays; embracing all the known photographic processes and new discoveries in the art*, London: Longman, Brown, Green, and Longmans 1844.

41 – Robert Hunt, 'Energiatype: A New Photographic Process', *The Athenaeum*, 866 (1 June 1844), 500–01. Hunt's Energiatype (later sometimes called the Ferrotype, which should not be confused with another subsequent process known as ferrotype or tintype) used paper coated with a solution of succinic acid and gum Arabic (a natural gum from the acacia tree).

42 – Sally Shuttleworth and Geoffrey Cantor, 'Introduction', in *Science Serialized: Representations of the Sciences in Nineteenth-Century Periodicals*, ed. Sally Shuttleworth and Geoffrey Cantor, Cambridge, MA: MIT Press 2004, 1–15.

Figure 6. William Buckler, *Robert Hunt*, watercolour and chalk on cardboard, 1842. Wellcome Collection, London.

references on science in other works, including news, fiction and poetry.[43] Hunt wrote on photography for a range of British journals, including the *Photographic Society Journal*, the *Art Journal* and the *Athenaeum*.[44] He also acquired an international readership when the American-based *Photographic Art Journal* and *Daguerrian Journal* reprinted many of his articles from the *Art Journal* and serialised three of his books.[45]

However, as Hunt discovered, the dispersed networks constituted by printed books and journals could present very public dangers as well as opportunities for an author's reputation. As an advocate of the eighteenth-century particle or 'corpuscular' theory of light, Hunt believed that the sun was made up of three distinct elements: heat, light and 'photographic' power or what he called 'Energia'. In this he departed from both Herschel and Talbot but came closer to ideas of Sir David Brewster, another important supporter of Hunt's work.[46] Hunt's published use of the word 'Energia', however, led him into a very public and international conflict in print with John Draper (1811–82), the English-American photographic experimenter and Professor of Chemistry at New York University who had the authority to bestow a name on this supposed third element.[47] The fact that neither Hunt nor Draper emerged well from the dispute showed how such networks of print could damage as well as enhance an individual's authority. Hunt only dropped his convictions regarding the theory

43 – Geoffrey Cantor, Gowan Dawon, Graeme Gooday, Richard Noakes, Sally Shuttleworth, and Jonathan R. Topham, *Science in the Nineteenth-Century Periodical: Reading the Magazine of Nature*, Cambridge: Cambridge University Press 2004.

44 – Many of Hunt's extensive published works are listed in Pearson, *Robert Hunt*, 117–23.

45 – Tong, *Robert Hunt*, xxv.

46 – The Scottish scientist Sir David Brewster (1781–1868) was also the editor of the *London and Edinburgh Philosophical Magazine*, which serialised a number of articles by Hunt that became his book *Researches on Light* (1844); Robert Hunt, 'Energiatype – A New Photographic Process', *Philosophical Magazine*, 24:162 (1844), 544–45. For philosophical parallels between Hunt and Brewster, see Edwards, 'Hunt'.

47 – Draper suggested that photographs were produced by a new 'imponderable substance' he named 'tithonicity'. John William Draper, 'On a New Imponderable Substance, and on a Class of Chemical Rays Analogous to the Rays of Dark Heat', *Philosophical Magazine*, 21 (December 1842), 454–55. An outline of the conflict between Hunt and Draper over the primacy of their respective ideas of 'energia' and 'tithonicity' is presented in Pearson, *Robert Hunt*, 20–45. Contributions by Hunt and Draper are set within wider photochemical research on the solar spectrum in Klaus Hentschel, *Mapping the Spectrum: Techniques of Visual Representation in Research and Teaching*, Oxford: Oxford University Press 2002, 198–203. For a valuable account of Draper's contribution to early photography, which confirms the importance of British journals in shaping individual reputations in the field, see Sarah Kate Gillespie, 'John William Draper and the Reception of Early Scientific Photography', *History of Photography*, 36: 3 (August 2012), 241–54.

of light in the 1870s. His attachment to older ideas of 'chemical rays' being a distinct element, in the face of increasing evidence and opinion, may be partly explained by his Romantic leanings and attachment to social networks in which natural theology remained prominent.

While the RCPS and Falmouth in general gave Hunt significant new opportunities in photography, he in turn promoted the RCPS and its work, both during and after his residency in the town. Through his own networks of writing and experimenting with photography, as well as his commitment to the overall ambitions of the RCPS, Hunt helped make Falmouth more finely tuned and directly connected to developments in early photography than almost any other British town. As early as 1841, an album of early calotypes made by Talbot was shown at a RCPS meeting and two years later a selection of daguerreotypes was displayed at the RCPS's autumn meeting. From the 1850s, the RCPS exhibitions featured photography extensively. Photography was also used to record the life of the Polytechnic itself (figure 7). The photographing of an interior view was assisted not only by a relatively long exposure time but also by the huge windows on either side of the Polytechnic Hall, designed to maximise the visibility of the interior space and its contents. The photograph also shows a wide array of objects, including photographs, maps, paintings, drawings and various inventions, which were central within the RCPS discussions of science and art.

Figure 7. John Counsell Stephens, *The Royal Cornwall Polytechnic Society, Falmouth, Annual Meeting and Exhibition, 28 September 1859*, albumen print, 1859. Science Museum London/Science & Society Picture Library.

Via his energetic work teaching, lecturing and promoting photography at the annual exhibitions and among his contacts and friends, Hunt created a fertile environment for the growth of a unique and vibrant regional culture of photography, which emerged (encouraged by the growth of tourism) in the period from 1845 to 1870.[48] Even after he left Falmouth in 1845 to take up an appointment in London as Keeper of Mineral Statistics, Hunt returned regularly to Cornwall to give lectures on the art and science of photography, and often brought with him different examples of photographs and equipment. This information was disseminated further afield via Society reports and local newspapers. In 1859 Hunt was invited to participate in the 50th anniversary celebrations of the Camborne Institution. As well as delivering a special lecture, Hunt exhibited 'upwards of 50 photographic views and specimens of photogalvanography and an equally valuable collection of chromolithographs sent down from London'.[49] From 1859, when Hunt was vice-president of the RCPS, bolstered further by the rise of commercial and amateur photography in the region, the RCPS offered a new prize for the best series of photographs shown at its annual exhibition. Although the first winner was an amateur, by the mid-1860s the RCPS photographic exhibitions were attracting submissions by some of the best known and most highly regarded professional photographers of the day, including Henry Peach Robinson, Oscar Gustave Rejlander and Francis Bedford.[50] Such was the success of these competitive shows, and demand for space, that in 1864–65 'Photography' was given its very own category in the annual exhibition, where it continued to attract entrants from across Britain. In 1875, the well-known Whitby-based photographer Frank Meadow Sutcliffe exhibited his work.[51] Exceptional photographs were awarded medals, and commercial photographers such as Falmouth-based Edgar Gael often promoted their RCPS award status on the verso of their photographs.[52] The development of this rich photographic culture in Falmouth owed much to the early networks and activities Hunt had fostered through the RCPS.

48 – See Charles Thomas, *Views and Likenesses; Early Photographers and their Work in Cornwall and the Isles of Scilly 1839 to 1870*, Truro: Royal Institution of Cornwall 1988.

49 – Report in *Royal Cornwall Gazette and General Advertiser*, 9 September 1859, cited in Thomas, *Views and Likenesses*, 16.

50 – Thomas, *Views and Likenesses*, 16–17.

51 – Ibid.

52 – Edgar Gael (1849–1919) first established his photographic portrait studio in Bromley (1874–79) before trying his luck in several seaside towns, including Falmouth (1880–87), Exmouth (1887–91) and finally Bexhill-on-Sea (from 1892). David Simkin, 'Professional Photographers in Bexhill-on-Sea (G-H)', available at http://www.photohistory-sussex.co.uk/ (accessed 20 March 2015).

Networks of Respectability and Class

Despite the opportunities presented by his position as Secretary of the RCPS, Hunt still faced social and economic challenges to forging a reputation in science; social interaction and spatial proximity did not necessarily make for social equality. Although the Fox family, for example, showed kindness to Hunt, they did not include him in their inner social circles. This was not simply because they were Quakers and he was an Anglican; they embraced the intellectual, cleric and editor of the *Athanaeum* John Stirling (1806–44) much more fulsomely when he moved to Falmouth. With their extended family, commercial wealth and grand houses staffed by many servants, the Fox family literally moved in a different world to Hunt.

Fine judgements of class also mattered in networks of Victorian photography.[53] William Henry Fox Talbot, for example, educated at Harrow and Trinity College Cambridge, elected FRS in 1831 and Liberal MP for Chipenham in 1833, had the means to abandon a career in politics to pursue his interests in science at the family residence of Lacock Abbey in Wiltshire. While undoubtedly a highly gifted mathematician and inventor, Talbot lived in a world of grand country houses maintained by servants and inhabited by highly educated and well-travelled men and women of social status and political influence. When Talbot had his great inspiration to undertake experiments in order to preserve permanently the 'fairy pictures' made by the camera obscura,[54] while on the shores of Lake Como in Italy during his six-month tour of the Continent in 1833, Hunt was struggling to run a family chemist and druggist business in Penzance, Cornwall. Many of Hunt's activities were underpinned by financial necessity as much as by curiosity; his world was much more precarious both financially and socially, at least until the mid-1850s when he was approaching fifty and had an established reputation in science and society.

53 – David Cannadine, *Class in Britain*, New Haven, CT: Yale University Press 1998.

54 – H. Fox Talbot, *The Pencil of Nature*, part I, London: Longman, Brown, Green, & Longman 1844, ii. Reproduced in Larry J. Schaaf, *The Pencil of Nature: Anniversary Facsimile*, New York: Hans P. Kraus, Jr. Inc. 1989.

Nevertheless, despite his lowly background, Hunt found friendly correspondence with Talbot, to whom he was introduced by his great supporter Sir John Herschel. It may also have helped that Talbot's uncle was Sir Charles Lemon (1784–1868), President of the RCPS from its establishment in 1832 until his death in 1868. Lemon appointed Hunt as Secretary in 1840 and directed many of his activities. Lemon was highly influential both regionally and nationally, being 2nd Baronet, Liberal MP for West Cornwall, Fellow of the Royal Society (1822), President (1836–38) of the Statistical Society of London, President of the Royal Geological Society of Cornwall (1840–56) and an influential Freemason.[55] He certainly encouraged Hunt's statistical interests in collecting all kinds of regional information, particularly in mining, which was of lasting benefit to Hunt's career. It was also at Lemon's behest and funding that Hunt began educational work with miners, which led eventually to the establishment of the Camborne School of Mines. Despite, or perhaps because of, such patronage, a clear social distance remained between Hunt and his benefactors. When Talbot visited Cornwall in August 1841, he stayed at Carclew House, Sir Charles Lemon's Palladian country house just north of Falmouth (making some early photographs of the house and grounds). Yet while John Sterling was invited to Carclew, Hunt was not. It is likely that Hunt would have felt quite out of place in such grand surroundings, since even Sterling, who rather patronised Hunt in public at RCPS meetings, found Talbot socially intimidating. Talbot's social connections gave him opportunities far outside Hunt's world; they occupied very different places, geographically and socially.

55 – While there is no evidence that Robert Hunt joined the Freemasons, the benevolent organisation played a powerful networking role in nineteenth-century Britain, especially in Cornish mining and business communities. See Roger Burt, 'Freemasonry and Business Networking during the Victorian Period', *The Economic History Review*, 56:4 (November 2003), 657–88.

Nevertheless, networks of print culture and the growth of professional science offered new opportunities for men like Hunt who did not benefit from private incomes. Hunt's success as a writer on photography and science, together with the support of well-established patrons, became a key means to advance his reputation and gain greater security for his growing family. For example, Hunt used his book *Researches on Light* (1844) and testimony from Sir Charles Lemon and Sir John Herschel to secure a free place for his eldest son at Christ's Hospital, a private charitable school in London.

Robert Hunt and Spaces of Metropolitan Science

Despite the opportunities afforded to him in Cornwall and his familial networks in the region, Hunt sought to further his career in science and financial security for his family. Although Falmouth was an important node in the postal network, it was remote from metropolitan centres of science and travelling beyond Cornwall was a time-consuming business.[56] With its large population and influential institutions of science and art, London exerted an inevitable pull on men like Hunt. In 1845 Hunt secured an appointment as Keeper of Mining Records at the Museum of Practical Geology, founded in 1838 by Sir Henry De la Beche, whom he had first met through networks of Cornish geology. Since 1838 the Museum had been based in Whitehall, but by the time Hunt was appointed plans were afoot to construct a purpose built Museum on Jermyn Street, Piccadilly, accommodating the Geological Survey, the Royal School of Mines and the Mining Records Office. On 12 May 1851, only a few days after the opening of the Great Exhibition, the Museum of Practical Geology was opened by Prince Albert.[57]

56 – Although regular steamships travelled from Falmouth to Plymouth, and on to Portsmouth from where the railway connected to London, it was not until 1859 that Brunel's famous bridge spanned the Tamar River and brought Cornwall into the railway network of the rest of Britain.

57 – Robert Hunt, *A Descriptive Guide to the Museum of Practical Geology*, 2nd edn, London: George E. Eyre and William Spottiswoode 1859. See also Hannah Gay, *The History of Imperial College London, 1907–2007*, London: Imperial College 2007, 14.

Hunt's duties as Keeper of Mining Records built on the skills and networks he had developed in Cornwall and included collecting, organising and publishing statistics on British mining and managing mining maps, sections and mineral specimens. He also undertook travels to mining districts and, as a Professor in the School of Mines from 1851, gave lectures on various aspects of mining. With De la Beche's encouragement, Hunt continued his research in science. In 1846–47, for example, he examined the influence of magnetism on crystallisation and other chemical reactions, and the role of electricity in the deposition of minerals. Further afield, he continued his investigations into the effect of coloured glass on plant growth, advising the Royal Botanical Gardens at Kew on the use of glass in

their new palm house.[58] During his first decade in London, Hunt also pursued his research on light but, somewhat bruised by the print controversy over 'Energia', tended to focus on publishing his observations rather than speculate on the wider explanatory theories that might lie behind them.

Hunt's position in London gave him direct access to the heart of metropolitan networks of science and art. His colleagues at the Royal School of Mines and in the Geological Survey, such as De la Beche, Andrew Ramsay and Lyon Playfair, offered professional camaraderie and a lively research community.[59] They also gave influential points of contact and social access, both to other learned organisations and committees, such as the organising committee of the Great Exhibition in 1851, and other scientists like Michael Faraday with whom Hunt corresponded about electromagnetism. Hunt was swift to join a number of growing learned and scientific societies in London, including the Chemical Society, the Statistical Society and the Society of Arts.[60] At the same time, Hunt's Museum position gave him renewed opportunities to visit and make contacts in Cornwall – for example, through his mining duties and the Royal Geological Society of Cornwall. Finally, Hunt's new post afforded him openings and audiences in the fields of popular science lecturing and writing. As well as publishing a range of topics in periodicals and journals of science, art and literature, Hunt authored a number of popular books, including *Poetry of Science* (1848), *Elementary Physics* (1851) and *Panthea: The Spirit of Nature* (1849).[61] Discussions of photography and his researches on light featured in many of his writings and further disseminated his reputation as an authority on such matters to a wide reading public.

Hunt's location in London, his growing reputation in print and his place within learned societies such as the Society of Arts enabled him to play a central part in new metropolitan networks of photography. In 1847, Hunt and the publisher Joseph Cundall began the Calotype Society, echoing the Edinburgh Calotype Club formed in 1843, and bringing together a small group of gentlemen amateurs to exchange photographs and discuss photographic processes. By 1850 this evolving group was replaced by the Photographic Exchange Club. Two notable events in 1851 propelled wider calls for a more formal photographic society to be founded in London.[62] The first, in March that year, was the announcement of Frederick Scott Archer's collodion process, which offered technical advancement on Talbot's calotype process and, at first, was not covered by Talbot's patent restrictions. The second event, in May 1851, was the opening of the Great Exhibition in which the art and science of photography was displayed prominently. Over the course of six months some six million people visited the exhibition and had the opportunity to view, among many other displays, hundreds of photographs as well as cameras and photographic equipment. Specimens of Hunt's 'chromatype pictures' were exhibited alongside Herschel's cyanotype and chrysotype.[63] At the same time Hunt became well known through his editorship of a popular handbook to the Great Exhibition.[64]

Hunt played a pivotal role in a network of amateur photographers who were keen to build on the great interest in photography and technical developments, pressing ahead with a London-based photographic society. However, Talbot argued that his 1843 calotype patent also covered the collodion process. A meeting between Hunt and Talbot produced some changes to Talbot's restrictions but no resolution. A 'Proposal for the Formation of a Photographical Society', published in April 1852 by a committee seeking to establish a London-based society, publicly challenged Talbot's claims. However, the resulting meeting between Talbot and a group from the committee, including Robert Hunt, Roger Fenton and Peter Le Neve Foster, failed to reach agreement. It was only after renewed and sustained efforts led jointly by Sir Charles Eastlake, Director of the National Gallery, and Lord Rosse, President of the Royal Society, that finally in July 1852 Talbot bowed to pressure and dropped his patent claim except for the use of calotype in commercial portraiture.

With the uncertainty over patents resolved sufficiently, Hunt and his fellow committee members set about planning the Photographic Society, which held its

58 – Robert Hunt, *Researches on Light*, 2nd edn, London: Longman, Brown, Green, and Longmans 1854, 379. See also Henrik Schoenefeldt, 'The Use of Scientific Experimentation in developing the Glazing for the Palm House at Kew', *Construction History*, 26 (2011), 19–39.

59 – See James A. Secord, 'The Geological Survey as a Research School', *History of Science*, 24:3 (September 1986), 223–75.

60 – See V. L. Hilts, '*Aliis Exterendum*, or, the Origins of the Statistical Society of London', *Isis*, 69:1 (March 1978), 21–43.

61 – Robert Hunt, *The Poetry of Science, or Studies of the Physical Phenomena of Nature*, London: n.p. 1848; Robert Hunt, *Elementary Physics, An Introduction to the study of Natural Philosophy*, London: n.p. 1851; and Robert Hunt, *Panthea: The Spirit of Nature*, London: Reeve 1849.

62 – See Dudley J. Johnston, 'The Origins of the Photographic Society', *Journal of the Royal Society of Arts*, 87:4518 (June 1939), 831–37; Roger Taylor, 'Claudet, Fenton and the Photographic Society', *History of Photography*, 27:4 (Winter 2003), 386–88; and Michael Pritchard, 'History of the RPS', available at http://www.rps.org/about/history/history-of-the-rps (accessed 22 February 2015).

63 – 'Specimens of Sir John Herschel's cyanotype and chrysotype, and of Mr. Robert Hunt's chromatype pictures, Exhibit number 297.04, v 1, Class 10, United Kingdom. Exhibited by the photographers Henneman & Malone', cited in Roger Taylor, *Photographs Exhibited in Britain 1839–1865*, available at http://peib.dmu.ac.uk/ (accessed 15 January 2015).

64 – *Official Descriptive and Illustrated Catalogue of the Great Exhibition of the Work of Industry of All Nations*, ed. Robert Hunt, 3 vols, London: Spicer Brothers 1851.

inaugural meeting on 20 January 1853 in the Society of Arts, London.[65] Like other societies Hunt was involved with, this network was sustained by personal contact, printed journals and exhibitions.[66] Over the next year the Society refined its rules and governing structure, and organised publication of its own monthly journal to disseminate reports of meetings and other useful photographic information to members and other learned institutions. As well as launching a journal, the Society initiated its other core aim of mounting an exhibition of photography – both key means to expose the art and science of photography more widely to the public. Exhibitions, however, required suitable physical spaces and the difficulties of securing a venue frustrated early aspirations. In 1853, together with four colleagues, Hunt coordinated the Society's first exhibition – 'open to all the world' – which opened to public acclaim at the Gallery of the Society of British Artists, Suffolk Street, in January 1854.[67]

The popularity and financial success of the Photographic Society, which secured Royal patronage in the same year, was of considerable satisfaction to its early advocates like Hunt, who was elected its first vice president. However, underlying this new organ of photographic networks lay a series of fractures and conflicts, especially over Talbot's patent. A detailed discussion of the controversy around Talbot's patents, and Hunt's role in attacking them, is unfortunately beyond the scope of this article. What is worth noting here, however, is the often conflicted way in which networks of early photography evolved. One area of tension was that between amateurs and professionals.[68] Men like Talbot wished the Photographic Society to be the exclusive preserve of the gentleman amateur, free from taints of commerce. Others, notably Fenton, envisaged the organisation as open to commercial, professional photographers. Although Hunt did not practice photography for profit, his background, dependency on a museum salary as well as commercial publishing networks meant that his sympathies lay with those who sought to open up the medium for the benefit of the public at large.

Another related field of conflict lay around Talbot's patent, which restricted the development of commercial photography in England. Despite Talbot's eventual agreement to drop his patent, his actions and character remained under scrutiny. As Larry Schaaf has noted, Talbot 'was savagely (and generally unfairly) attacked in print. Even Talbot's priority of invention was contested, with implications that he had appropriated others' work'.[69] When Talbot subsequently took a London-based photographer to court, his patent hold on commercial portraiture met its final demise. Hunt played a significant role in this process, producing an affidavit in support of the photographer and against affidavits by Sir John Herschel and Sir David Brewster. The court effectively sided with Hunt, recognising Talbot's singular invention but denying the scope of his patent to incorporate improvements on his concept. Talbot's reputation was damaged and he moved into photographic engraving and printing, declining an invitation to be President of the new Photographic Society.[70] While there is no evidence that Hunt took delight in this victory, it completed his estrangement from Talbot as well as his greatest benefactor, Sir John Herschel, fracturing the professional networks that first nurtured the young Cornish chemist. There is some truth to Schaaf's claim that in challenging Talbot's patents on the calotype process in the early 1850s, 'Hunt became a vicious (and often anonymous) critic of the inventor, once his friend and correspondent, alienating himself even more from his early supporters'.[71] Such conflicts emerged not merely out of clashes of character, but as a result of shifting positions within a range of professional and personal networks.

Hunt's opposition to Talbot had various roots. His early social networks secured Hunt's belief that science was for everyone and he thus absorbed a wider public hostility to patents. Talbot clearly had a range of motivations for taking out his various patents on photography, yet it was widely felt that Talbot's calotype patent restricted the practical uptake of photography in England for much of the 1840s. Well placed across various networks, Hunt became an active spokesperson

65 – 'Photographic Society', *Journal of the Society of Arts*, 1 (28 January 1853), 114.

66 – For an important overview of early photographic exhibitions, see Roger Taylor, 'Some Notes on Photographic Exhibitions in Britain 1839–1865', in Roger Taylor, *Photographs Exhibited in Britain 1839–1865*, available at http://peib.dmu.ac.uk/ (accessed 15 January 2015).

67 – *Journal of the Photographic Society*, 1 (21 December 1853), 141, cited in Taylor, 'Some Notes', 7.

68 – See Grace Seiberling with Carolyn Bloore, *Amateurs, Photography, and the mid-Victorian Imagination*, Chicago: University of Chicago Press 1986. For a helpful discussion of the complex meanings and uses of 'amateur' and 'professional' in Victorian science, see also Ruth Barton, '"Men of Science": Language, Identity and Professionalization in the Mid-Victorian Scientific Community', *History of Science*, 41:1 (March 2003), 73–119; and Philippa Levine, *The Amateur and the Professional: Antiquarians, Historians and Archaeologists in Victorian England 1838–1886*, Cambridge: Cambridge University Press 1986.

69 – Larry J. Schaaf, 'Talbot, William Henry Fox (1800–1877)', in *Oxford Dictionary of National Biography*, Oxford University Press, 2004, online edn, September 2013, available at http://0-www.oxforddnb.com.lib.exeter.ac.uk/view/article/26946 (accessed 6 September 2015).

70 – Pritchard, 'History of the RPS', n.p.

71 – Schaaf in collaboration with Taylor, 'Biographical Dictionary', 332.

and experienced organiser for those wishing to promote photography as a useful art and science for all. Finally, as an individual who had struggled with few of Talbot's social advantages and financial resources and for whom Fellowship of the Royal Society seemed still out of reach (Hunt was eventually elected FRS in 1854), Hunt may well have fostered some resentment towards Talbot, despite their previous amicable relations.

Yet even this does not provide a sufficient explanation for the rupture in Hunt's relationship with Talbot and, more surprisingly, Herschel, who was perhaps his greatest advisor and advocate. Hunt's uncharacteristic animus towards Talbot may also have been catalysed by changes in other professional and family networks. In 1850–51, with the reorganisation and relocation of the Museum of Practical Geology, Hunt endured considerable uncertainty over his continued place within the organisation.[72] Hunt's financial anxieties were underlain by considerable personal concerns. In the late 1840s Robert Hunt's two sons Robert (b.1834) and Charles (b.1837) began to exhibit signs of epilepsy. Despite every effort and expense in medical treatments, Hunt's eldest son, Robert, became so unwell that he had to leave his charitable boarding school in January 1850 and return into the care of his parents.[73] In 1852 he was admitted as a private patient to Bodmin Asylum, Cornwall, where he died two years later.[74]

Although such family tragedies were far from rare in mid-Victorian Britain, the debilitating illness, distressing treatment, confinement and death of Robert Hunt's promising eldest son and the worsening health of his other son occurred precisely at the point when his collective efforts to establish a photographic society in London were frustrated by Talbot's intransigence over his patent.

Hunt's role in London-based learned organisations and his conflicts with Talbot were also part of wider realignments in spaces of knowledge in mid-Victorian Britain. The spaces of London science underwent significant 'refashioning' in the Victorian period, with a notable contrast to be found between the 'scientific naturalists' who came to dominate the Royal Society, and the older, aristocratic men of science with their country house laboratories.[75] Hunt was often caught between such worlds; his adherence to natural theology and spiritualist tendencies made him seek to reconcile science with religion, yet he followed many scientific naturalists in his distance from the country house world of gentlemen science.

Accounts of early photography need to pay attention to local sites where early photography took place and how it travelled between places. Just as historians of science have noted how science is socially and spatially situated, early photography was often highly experimental and its outcomes were highly contingent on local factors, from the local cultures of science to the availability and quality of paper, chemicals and sunlight.[76] Hunt's early nurturing in learned societies in Devonport and Falmouth and his employment as a chemist in a mineral-rich region gave practical and intellectual impetus to his photochemical experiments. It also shaped his writing on photography; as early as 1840 Hunt was employing mining metaphors to promote photographic research, noting how: 'To every inquirer, there is a mine of discovery, of which the few specimens I have gathered on the surface will, I trust, show the richness of the yet buried treasure'.[77] In this way, early photography, like science more generally, was inextricably bound up with the society and space within which it took place.

Conclusion

Exploring the history of photography geographically offers new perspectives that are often overlooked in conventional accounts. This is perhaps especially relevant for the early history of photography which, as Robert Hunt himself observed, took numerous paths and traversed many domains of science and art. This article has sought to locate Hunt, as one notable figure in early photography, across a range of

72 – Hunt's role as Professor in the School of Mines ended in 1854 and he devoted his energies thereafter to fulfilling his duties as Keeper of Mineral Statistics. Some of Hunt's concerns over his duties and finances are evident within the correspondence he maintained in this role; 'Entry Book of in and out Letters 1842–1860', Archives of the British Geological Survey, Nottingham, GSM 1/7, 144.

73 – In early 1850, Robert Hunt's son Robert was 'discharged without comment into the care of his father' from Christ's Hospital, the charitable boarding school he had attended since 1844. Records of Christ's Hospital, 14 January 1854.

74 – Robert Hunt junior's asylum admittance record, signed by his father and two Penzance-based physicians, identified him to be: 'constantly imbecile […] never dangerous though sometimes very troublesome […] liable to epileptic fits with only short intervals between'. As well as noting that he had first exhibited his symptoms three years earlier, the record observed that 'he has every kind of treatment, both in London and at Penzance, without benefit'. Robert Hunt jnr, admittance record, 9 September 1852, Cornwall Record Office, Records of Bodmin Asylum, HC1/4/1/22/267; Robert Hunt junior died on 28 June 1854 and was buried on 4 July in Bodmin cemetery, Cornwall. Cornwall Record Office, Bodmin Burials Register, 1839–55, 184.

75 – Bernard Lightman, 'Refashioning the Spaces of London Science: Elite Epistemes in the Nineteenth Century', in *Geographies of Nineteenth-Century Science*, ed. Livingstone and Withers, 41.

76 – For examples of the former, see Jan Golinski, *Making Natural Knowledge: Constructivism and the History of Science*, Cambridge: Cambridge University Press 1998; and Steven Shapin, 'Placing the View from Nowhere: Historical and Sociological Problems in the Location of Science', *Transactions of the Institute of British Geographers*, 23:1 (1998), 5–12.

77 – Robert Hunt, 'On the Use of Hydriodic Salts as Photographic Agents', *Philosophical Magazine*, Series 3, 17 (1840), 267–68.

networks in nineteenth-century Britain. By considering Hunt's place, not as an isolated pioneer but as a networked and mobile individual, we can better appreciate how early photography was shaped by a wide cast of individuals and institutions operating across networks of science, applied arts and publishing at a range of scales. In each of the locations considered, from Cornwall to London, a range of networks coalesced in distinctive patterns. Indeed, this configuration of relationships is what lent such places their unique character and identity; as the geographer Doreen Massey puts it: 'places, in fact, are always constructed out of articulations of social relations [...] which are not only internal to that locale but which link them to elsewhere'.[78] These different places were necessarily connected and traversed by people, objects and information. From his initial bases in Devon and Cornwall, Hunt cultivated connections in science, using local, regional and national institutions such as the RCPS and the BAAS to extend his networks geographically and socially. He secured his position in London largely thanks to his regional work and contacts. Once in London, Hunt retained and even strengthened his professional and emotional connections to Devon and Cornwall, particularly through his family links, his highly popular 1865 published collection of folklore and his pioneering work in advocating education in mining communities.

78 – Doreen Massey, 'Places and Their Pasts', *History Workshop Journal*, 39 (Spring 1995), 183.

Networks of early photography in Britain were more geographically dispersed across a range of scales than has been generally acknowledged. As Hunt's activities attest, in Cornwall and Devon local and regional cultures of science, applied arts, mining and maritime technology proved highly fertile for the spread of photographic practices and businesses. Far from being isolated islands of activity, local sites of provincial photographic activity were closely connected to other places, regionally, nationally and internationally. The interest in, and practice of, photography was also dispersed and disseminated through highly mobile individuals, circulating around social networks animated by meetings, exhibitions, correspondence and publication. Thus Hunt regularly attended meetings of the BAAS as it met in different industrial cities around the British Isles, spreading its vision of science as a universal public benefit and as 'an available, visible, and desirable cultural resource'.[79]

79 – Jack Morrell and Arnold Thackray, *Gentlemen of Science: Early Years of the British Association for the Advancement of Science*, Oxford: Clarendon 1981, 224. See also Charles W. J. Withers, *Geography and Science in Britain, 1831–1939: A Study of the British Association for the Advancement of Science*, Manchester: Manchester University Press 2010.

Examination of Hunt's work also highlights the importance of publishing networks of periodicals and books in shaping the practice of early photography as well as its early official history. Hunt's practical experiments and presentations in institutions of regional and national science prompted his published writings, which in turn spread his authority and reputation. Hunt's highly successful 1841 treatise on photography grew out of his work at the BAAS meeting in Glasgow in 1840. Although the book was written mostly from his home base in Falmouth, it was published in Glasgow. Its several updated and expanded editions reinforced Hunt's authority as a man of photographic science and chronicler of the history of its myriad technical antecedents and advances to a wide national and international readership.

Attention to spaces of early photographic networks draws attention to the critical role played by clubs and societies. Hunt's organisational activities took place via social networks that were fostered, consolidated and amplified through numerous learned societies, especially by means of meetings, circulars, exhibitions and journals. Although essential to his early work in Devon and Cornwall, these mechanisms took on even more prominence following his move to London and his involvement in metropolitan learned societies, particular the Society of Arts and the London Photographic Society. Hunt's instrumental role in the latter was recognised when in 1873 he and Talbot became the first two honorary members to be elected to the Royal Photographic Society.[80] With its population size and range of institutions of science and art, London was at the heart of many networks of early photography. The metropolis not only brought people together with more frequency and magnitude; it enabled greater intensity of network connections and interactions.

80 – *Photographic Journal*, 15 (1873), 178.

Many practitioners of early photography had myriad interests. Key figures like Talbot and Herschel were often more preoccupied with other pursuits, such as, respectively, Egyptology and Astronomy. Hunt was no different in that his early photographic work ran alongside other interests, notably in research on light; practical geology and mining; folklore; and poetry and fiction. Indeed for Hunt, photographic experimentation was just one form of Romantic science that gave him both material and spiritual sustenance.[81] However, such varied pursuits stemmed from Hunt's need – unlike gentlemen of independent means like Talbot – to make a living from science. In this, Hunt was not alone; the Victorian chemist and physicist William Crookes (1832–1919) was involved in a similarly wide range of enterprises, including photography, science journalism, spectroscopy and spiritualism.[82]

Hunt's deep roots in Cornwall gave him highly durable links to the region and its inhabitants. By comparison, Talbot's social networks in Wiltshire or Herschel's within Kent appear to have extended little beyond their elevated social class. Hunt's place within Cornish networks of learned and industrial society was not lost on his elevation to professional, metropolitan circles. Despite his residence far outside the county, Hunt's reputation in Cornwall grew in stature from his place of influence in London-based geological, museum and mining networks. The main institutional memorial to Robert Hunt, the Robert Hunt Memorial Museum, built in 1891, was not located in London but in Redruth, the heart of Cornwall's mining communities, to recognise his contribution to the region's mining science, industry and society.

Hunt's reputation in photography in its first three decades developed from his experiments with light, optics and chemistry, but achieved public exposure from his ventures in publishing, social organisation, campaigning and exhibiting. Above all, it was the new marketplace of printed knowledge and explosion of learned societies, in which he engaged so enthusiastically, that gave Hunt a public platform to communicate his work on photography and science to an expanding reading public. While some of Hunt's published communications were targeted at specific local audiences, others were aimed at a much wider readership. As Hunt discovered, public debates conducted via printed networks could inflict damage as well as enhance reputations. In the same way, evolving networks of photography could also prove fragile and conflict ridden. In the 1850s, from his location in London, Hunt became a founding figure of influence and authority within the networks of the newly formed Photographic Society. At the same time, his public opposition to Talbot's patent eroded his early support networks and sullied his longstanding relationships with Talbot and Herschel.

Hunt's activities also show how important the exchange and exhibition of photographs was in the initiation and maintenance of networks of early photography. His relationship with Herschel, for example, was based on the exchange and discussion of these mobile traces of photographic experiments. In turn, Hunt and organisations such as the RCPS received photographs from other photographers, which were shared within local and regional networks. In 1841, for example, the RCPS received a 'donation of Photographic drawings from H Fox Talbot Esq'.[83] Where photographs and scientific texts were produced and viewed was integral to the geography of circulation and communication of early photographic knowledge.[84] Even after his death, Hunt's writings and photographs continued to carry his reputation as a key figure in the history of photography. For example, in 1888, John Spiller, President of the Photographic Society of Great Britain in 1874, and regular exhibitor between 1874 and 1888, submitted some prints 'by the late Robert Hunt, R.F.S.' to the thirty-third exhibition of the Photographic Society of Great Britain.[85]

The history of photography is often presented through the lens of iconic individuals, metropolitan institutions and national frameworks. Yet a focus on networks suggests that the picture on the ground was far more uneven, with individuals working in local institutions and interconnected towns, cities and regions. The cultures of science and photography that emerged around and between

81 – Keene, 'Active Nature'. See also *Science as Romance*, ed. Ralph O'Connor, London: Pickering & Chatto 2012.

82 – William H. Brock, *William Crookes (1832–1919) and the Commercialization of Science*, Aldershot: Ashgate 2008.

83 – RCPS Committee Meeting 27 September 1841, RCPS Minute Book, II (1840–45), 85.

84 – See also Anne Secord, 'Pressed into Service: Specimens, Space, and Seeing in Botanical Practice', in *Geographies of Nineteenth-Century Science*, ed. Livingstone and Withers, 283.

85 – See 'Exhibition Catalogue of 1888 [Thirty-third] Exhibition of the Photographic Society of Great Britain', *The Photographic Journal* (29 September 1888), 11, exhibit numbers 449 and 450. From *Exhibitions of the Royal Photographic Society 1870–1915*, available at http://erps.dmu.ac.uk (accessed 22 September 2014).

the southwest port towns of Falmouth and Devonport confirm that networks of photography in nineteenth-century Britain mapped onto existing networks of science and applied arts but that both were uneven in their distribution and resilience.[86] Early photography thus exhibited not one but many historical geographies that are worthy of further examination.

Although currents of information on early photography flowed in many directions along networks that had numerous nodes, they were markedly intensified within major urban centres. Despite benefitting from the undoubted nurturing influence of distinctive regional cultures of science and art in Cornwall and Devon, Hunt quickly felt the gravitational pull of London metropolitan circles. It was from his vantage point in London that Hunt was able to exercise his greatest influence in the social and institutional networks whose greater intensity decisively shaped early photographic practice in legal, commercial and cultural terms. In such networks, personal contact and physical presence in society meeting rooms or courts of law remained an unavoidable form of influence.

Paying attention to the spaces and networks of early photography also means being attentive to the smaller and overlooked spaces and circuits of photographic work. Although largely invisible in his published output, Hunt's family network played a distinctive part in shaping his work in photography. His family and financial responsibilities were a powerful driver and catalyst for his relocation and operation within different networks of science. In comparison with the geographically distributed nature of his communications and publications, Hunt's experiments and writings took place largely within the small domestic setting of his family home – an arrangement that depended on a more intimate and local division of domestic labour in which his wife Harriet played a central part. His homes in Devonport and Falmouth served as places of experimentation – featuring in his photographs – as well as writing and organising. In due course his homes in London also housed his growing collection of writings, books and photographs. In addition to charting the distributed networks of technologies, individuals and institutions that shaped early photography, historians should pay equal attention to the nodes at which such networks originated and cohered – the small spaces and places in which early photography took shape.

86 – *Metropolis and Province: Science in British Culture, 1780–1850*, ed. Ian Inkster and Jack Morrell, Philadelphia: University of Pennsylvania Press 1983.